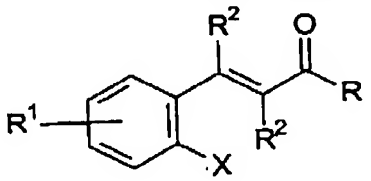
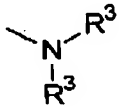
Appl. No. 10/693,733
Atty. Docket No. 8323MD
Amdt. dated November 23, 2004
Reply to Office Action of August 26, 2004
Customer No. 27752

AMENDMENTS TO THE CLAIMS

1. (Canceled) A photo-labile pro-fragrance conjugate having the formula:



wherein R is a unit capable of releasing a fragrance raw material having the formula:



wherein each R^3 is independently hydrogen, substituted or unsubstituted C_1-C_{30} hydrocarbyl, and mixtures thereof;

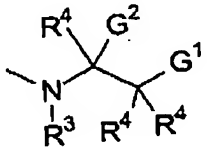
each R^1 is independently hydrogen, a unit which can substitute for hydrogen, C_1-C_{12} substituted or unsubstituted hydrocarbyl unit;

each R^2 is independently hydrogen, C_1-C_{12} substituted or unsubstituted hydrocarbyl unit, and mixtures thereof;

X is selected from the group consisting of –OH, $-OC(O)R^{12}$, $-OC(O)OR^{12}$, $-NHR^{12}$, and mixtures thereof; and

R^{12} is H, C_1-C_{12} substituted or unsubstituted alkyl, and mixtures thereof.

2. (Canceled) A conjugate according to Claim 1 wherein R has the formula:



wherein each R^4 is independently selected from the group consisting of:

i) hydrogen;

ii) C_1-C_{22} substituted or unsubstituted, branched or unbranched alkyl;

iii) C_2-C_{22} substituted or unsubstituted, branched or unbranched alkenyl;

iv) C_2-C_{20} substituted or unsubstituted, branched or unbranched hydroxyalkyl;

v) C_7-C_{20} substituted or unsubstituted alkylenearyl;

vi) C_3-C_{20} substituted or unsubstituted cycloalkyl;

vii) C_6-C_{20} aryl;

viii) C_5-C_{20} heteroaryl units comprising one or more heteroatoms selected from the group consisting of nitrogen, oxygen, sulfur, and mixtures thereof;

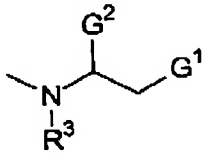
ix) two R^4 units can be taken together to form one or more aromatic or non-aromatic, heterocyclic or non-heterocyclic, single rings, fused rings, bicyclo rings, spiroannulated rings, or mixtures thereof, said rings comprising from 3 to 20 carbon atoms and one or more heteroatoms selected from the group consisting of nitrogen, oxygen, sulfur, and mixtures thereof;

x) and mixtures thereof;

G^1 and G^2 are each independently hydrogen, C_1-C_{20} linear or branched hydrocarbyl, –Y, –C(O)Y, and mixtures thereof; Y is C_6-C_{10} substituted or unsubstituted cyclic alkyl.

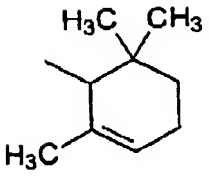
3. (Canceled) A conjugate according to Claim 2 wherein Y is selected from the group consisting of 2,6,6-trimethylcyclohex-2-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-3-enyl, and mixtures thereof.

4. (Withdrawn) A conjugate according to Claim 1 wherein R has the formula:



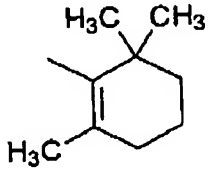
wherein G^1 and G^2 are each independently $-CH_3$, $-C(O)CH_3$, –Y, –C(O)Y, and mixtures thereof; Y is selected from the group consisting of:

i) 2,6,6-trimethylcyclohex-2-enyl having the formula:



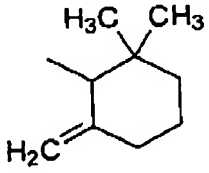
;

ii) 2,6,6-trimethylcyclohex-1-enyl having the formula:



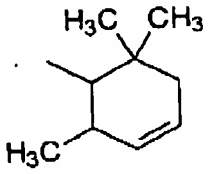
;

iii) 2,6,6-trimethylcyclohex-1-enyl having the formula:



;

iv) 2,6,6-trimethylcyclohex-3-enyl having the formula:



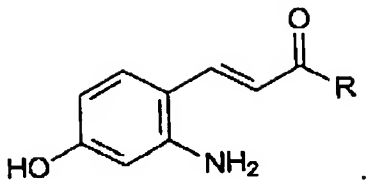
;

v) and mixtures thereof.

5. (Canceled) A conjugate according to Claim 1 wherein X is –OH.

6. (Canceled) A conjugate according to Claim 1 wherein R^1 is hydrogen.

7. (Withdrawn) A conjugate according to Claim 1 wherein said conjugate has the formula:

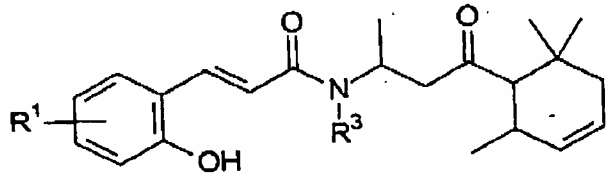


8. (Canceled) A conjugate according to Claim 1 wherein said R^1 is one or more electron donating groups selected from the group consisting of hydroxy, C_1-C_{12} linear or branched alkoxy, $-N(R^{12})_2$, and mixtures thereof; R^{12} is H, C_1-C_{12} alkyl, and mixtures thereof.

9. (Canceled) A conjugate according to Claim 8 wherein X is hydroxy.

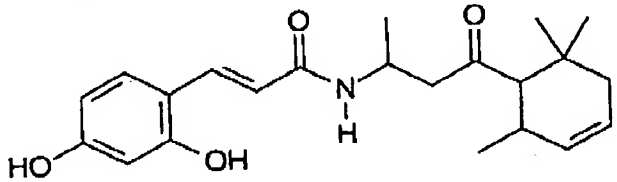
10. (Canceled) A conjugate according to Claim 1 wherein R^2 are each hydrogen.

11. (Withdrawn) A conjugate according to Claim 1 having the formula:

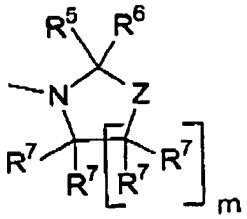


wherein R^1 is hydrogen, hydroxyl, and mixtures thereof.

12. (Withdrawn) A conjugate according to Claim 15 having the formula:



13. (Withdrawn) A conjugate according to Claim 1 wherein R has the formula:



wherein Z is oxygen or sulfur; m is from 1 to 3;

R^5 units are selected from:

a) C_6-C_{22} substituted or unsubstituted linear alkyl

b) C_6-C_{22} substituted or unsubstituted branched alkyl;

c) C_6-C_{22} substituted or unsubstituted linear alkenyl;

d) C_6-C_{22} substituted or unsubstituted branched alkenyl;

e) C_6-C_{22} substituted or unsubstituted cycloalkyl;

f) C_6-C_{22} substituted or unsubstituted branched cycloalkyl;

g) C_6-C_{22} substituted or unsubstituted cycloalkenyl;

h) C_6-C_{22} substituted or unsubstituted branched cycloalkenyl;

i) C_6-C_{22} substituted or unsubstituted aryl;

j) C_6-C_{22} substituted or unsubstituted heterocyclicalkyl;

k) C_6-C_{22} substituted or unsubstituted heterocyclicalkenyl;

l) and mixtures thereof;

R^6 units comprise hydrogen or R^5;

R^7 is independently selected from the group consisting of:

a) R^6;

b) hydroxyl;

c) a carbonyl comprising unit having the formula:

$$—(CH_2)_xCOR^8$$

wherein R^8 is:

i) -OH;

ii) $-OR^9$ wherein R^9 is hydrogen, C_1-C_{15} substituted linear alkyl, C_{11}-C_{15} unsubstituted linear alkyl, C_1-C_{15} substituted branched alkyl, C_{11}-C_{15} unsubstituted branched alkyl, C_2-C_{22} substituted or

unsubstituted linear alkenyl, C_3-C_{22} substituted or unsubstituted branched alkenyl, or mixtures thereof,

iii) $-N(R^{10})_2$ wherein R^{10} is hydrogen, C_1-C_6 substituted or unsubstituted linear alkyl, C_3-C_6 substituted or unsubstituted branched alkyl, or mixtures thereof;

iv) C_1-C_{22} substituted or unsubstituted linear alkyl;

v) C_1-C_{22} substituted or unsubstituted branched alkyl;

vi) C_2-C_{22} substituted or unsubstituted linear alkenyl;

vii) C_3-C_{22} substituted or unsubstituted branched alkenyl;

viii) C_3-C_{22} substituted or unsubstituted cycloalkyl;

ix) C_6-C_{22} substituted or unsubstituted aryl;

x) C_6-C_{22} substituted or unsubstituted heterocyclicalkyl;

xi) C_6-C_{22} substituted or unsubstituted heterocyclicalkenyl;

the index x is from 0 to 22;

d) alkyleneoxy units having the formula:

$$—[C(R^{11})_2]_y[C(R^{11})_2C(R^{11})_2O]_zR^{11}$$

wherein each R^{11} is independently;

i) hydrogen;

ii) -OH;

iii) C_1-C_4 alkyl;

iv) or mixtures thereof;

two R^{11} units can be taken together to form a C_3-C_6 spiroannulated ring, carbonyl unit, or mixtures thereof; y has the value from 0 to 10, z has the value from 1 to 50;

e) and mixtures thereof;

any two R^7 units can be taken together to form:

i) a carbonyl moiety;

ii) a C_3-C_6 spiroannulated ring;

iii) a heterocyclic aromatic ring comprising from 5 to 7 atoms;

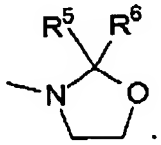
iv) a non-heterocyclic aromatic ring comprising from 5 to 7 atoms;

v) a heterocyclic ring comprising from 5 to 7 atoms;

vi) a non-heterocyclic ring comprising from 5 to 7 atoms;

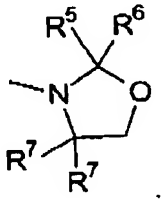
vii) or mixtures thereof.

14. (Withdrawn) A compound according to Claim 13 wherein R has the formula:



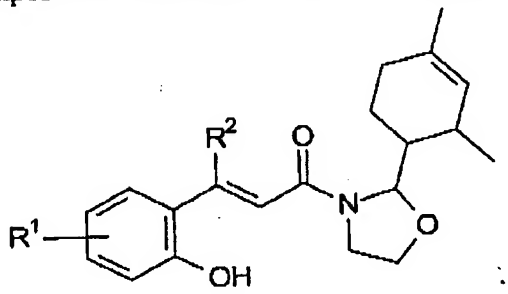
wherein R^6 is selected from the group consisting of hydrogen and methyl.

15. (Withdrawn) A compound according to Claim 13 wherein R has the formula:

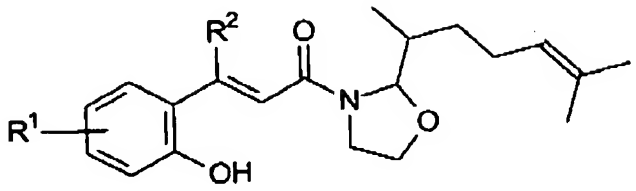


wherein R^6 is selected from the group consisting of hydrogen and methyl; each R^7 is independently hydrogen, methyl or $-C(O)OR^9$, and mixtures thereof; R^9 is hydrogen, C_1-C_{12} alkyl, and mixtures thereof.

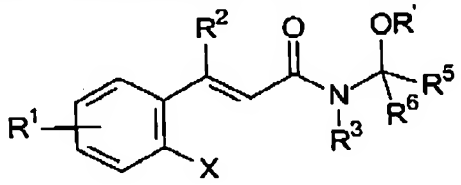
16. (Withdrawn) A composition according to Claim 13 having the formula:



17. (Withdrawn) A composition according to Claim 13 having the formula:



18. (Withdrawn) A compound according to Claim 11 having the formula:



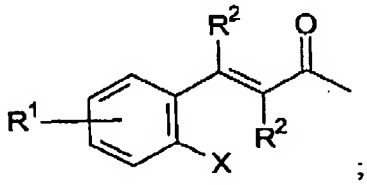
wherein R' is derived from an alcohol having the formula R'OH.

19. (Currently Amended) A photo-labile pro-fragrance conjugate having the formula:

[photo-labile unit]—$(L)_n$—[pro-fragrance unit]

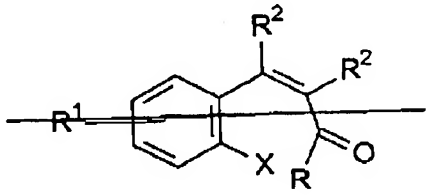
wherein said [photo-labile unit] is selected from the group consisting of:

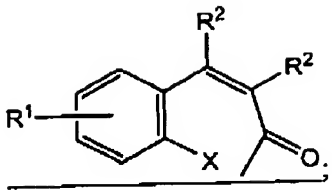
i)



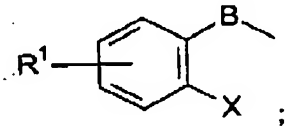
;

ii)





iii)



;

wherein each R^1 is independently hydrogen, a unit which can substitute for hydrogen, C_1-C_{12} substituted or unsubstituted hydrocarbyl unit; said units which can substitute for hydrogen are selected from the group consisting of;

i) $-NHCOR^{30}$;
ii) $-COR^{30}$;
iii) $-COOR^{30}$;
iv) $-COCH=CH_2$;
v) $-C(=NH)NH_2$;
vi) $-N(R^{30})_2$;
vii) $-NHC_6H_5$;
viii) $=CHC_6H_5$;
ix) $-CON(R^{30})_2$;
x) $-CONHNH_2$;
xi) -NHCN;
xii) -OCN;
xiii) -CN;
xiv) F, Cl, Br, I, and mixtures thereof;
xv) =O;
xvi) $-OR^{30}$;
xvii) -NHCHO;
xviii) -OH;
xix) $-NHN(R^{30})_2$;
xx) $=NR^{30}$;

xxi) $=NOR^{30}$;

xxii) $-NHOR^{30}$;

xxiii) -CNO;

xxiv) -NCS;

xxv) $=C(R^{30})_2$;

xxvi) $-SO_3M$;

xxvii) $-OSO_3M$;

xxviii) -SCN;

xxix) $-P(O)H_2$;

xxx) $-PO_2$;

xxxi) $-P(O)(OH)_2$;

xxxii) $-SO_2NH_2$;

xxxiii) $-SO_2R^{30}$;

xxxiv) $-NO_2$;

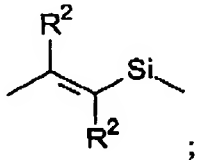
xxxv) $-CF_3$, $-CCl_3$, $-CBr_3$;

xxxvi) and mixtures thereof;

wherein R^{30} is hydrogen, C_1-C_{20} linear or branched alkyl, C_6-C_{20} aryl, C_7-C_{20} alkylenearyl, and mixtures thereof; M is hydrogen, or a salt forming cation; each R^2 is independently hydrogen, C_1-C_{12} alkyl, and mixtures thereof; X is ~~selected from the group consisting of~~ ~~$-OH$, $-NHR^{12}$, and mixtures thereof~~; R^{12} is H, C_1-C_{12} alkyl, and mixtures thereof;

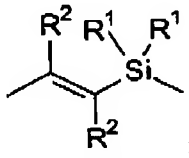
B is selected from the group consisting of:

i)



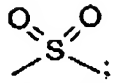
;

ii)



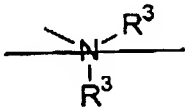
;

iii)

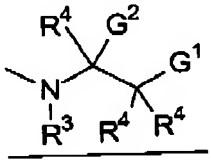


L units are –OC(O)–, –NR^{3}C(O)–, –OC(R^{3}R^4)–, –C(O)–, and mixtures thereof; n is 0 or 1;

the [pro-fragrance unit] has the formula:



~~wherein each R^3 is independently hydrogen, substituted or unsubstituted C$_1$-C$_{30}$ hydrocarbyl, and mixtures thereof~~



wherein each R^4 is independently selected from the group consisting of:

i) hydrogen;

ii) C$_1$-C$_{22}$ substituted or unsubstituted, branched or unbranched alkyl;

iii) C$_2$-C$_{22}$ substituted or unsubstituted, branched or unbranched alkenyl;

iv) C$_2$-C$_{20}$ substituted or unsubstituted, branched or unbranched hydroxyalkyl;

v) C$_7$-C$_{20}$ substituted or unsubstituted alkylenearyl;

vi) C$_3$-C$_{20}$ substituted or unsubstituted cycloalkyl;

vii) C$_6$-C$_{20}$ aryl;

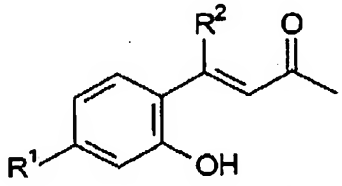
viii) C$_5$-C$_{20}$ heteroaryl units comprising one or more heteroatoms selected from the group consisting of nitrogen, oxygen, sulfur, and mixtures thereof;

ix) two R^4 units can be taken together to form one or more aromatic or non-aromatic, heterocyclic or non-heterocyclic, single rings, fused rings, bicyclo rings, spiroannulated rings, or mixtures thereof, said rings comprising from 3 to 20 carbon atoms and one or more heteroatoms selected from the group consisting of nitrogen, oxygen, sulfur, and mixtures thereof;

x) and mixtures thereof;

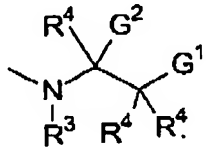
G^1 and G^2 are each independently hydrogen, C_1-C_{20} linear or branched hydrocarbyl, –Y, –C(O)Y, and mixtures thereof; Y is selected from the group consisting of 2,6,6-trimethylcyclohex-2-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-3-enyl, and mixtures thereof.

20. (Previously presented) A compound according to Claim 19 wherein said [photo-labile unit] has the formula:



wherein R^1 is hydrogen, hydroxyl, and mixtures thereof.

21. (Canceled) A compound according to Claim 19 wherein said [pro-fragrance unit] has the formula:



wherein each R^4 is independently selected from the group consisting of:

i) hydrogen;

ii) C_1-C_{22} substituted or unsubstituted, branched or unbranched alkyl;

iii) C_2-C_{22} substituted or unsubstituted, branched or unbranched alkenyl;

iv) C_2-C_{20} substituted or unsubstituted, branched or unbranched hydroxyalkyl;

v) C_7-C_{20} substituted or unsubstituted alkylenearyl;

vi) C_3-C_{20} substituted or unsubstituted cycloalkyl;

vii) C_6-C_{20} aryl;

viii) C_5-C_{20} heteroaryl units comprising one or more heteroatoms selected from the group consisting of nitrogen, oxygen, sulfur, and mixtures thereof;

ix) two R^4 units can be taken together to form one or more aromatic or non-aromatic, heterocyclic or non-heterocyclic, single rings, fused rings,

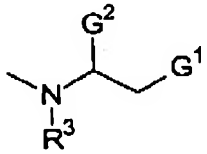
bicyclo rings, spiroannulated rings, or mixtures thereof, said rings comprising from 3 to 20 carbon atoms and one or more heteroatoms selected from the group consisting of nitrogen, oxygen, sulfur, and mixtures thereof;

x) and mixtures thereof;

G^1 and G^2 are each independently hydrogen, C_1-C_{20} linear or branched hydrocarbyl, –Y, –C(O)Y, and mixtures thereof; Y is C_6-C_{10} substituted or unsubstituted cyclic alkyl.

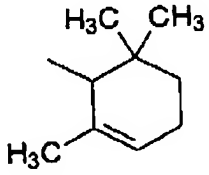
22. (Canceled) A compound according to Claim 21 wherein Y is selected from the group consisting of 2,6,6-trimethylcyclohex-2-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-3-enyl, and mixtures thereof.

23. (Withdrawn) A compound according to Claim 19 wherein said [pro-fragrance unit] has the formula:



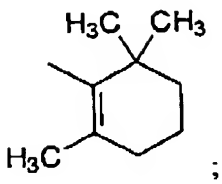
wherein G^1 and G^2 are each independently $–CH_3$, $–C(O)CH_3$, –Y, –C(O)Y, and mixtures thereof; Y is selected from the group consisting of:

i) 2,6,6-trimethylcyclohex-2-enyl having the formula:



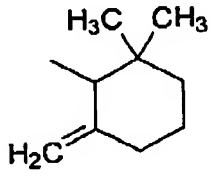
;

ii) 2,6,6-trimethylcyclohex-1-enyl having the formula:



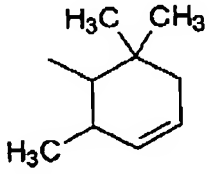
;

iii) 2,6,6-trimethylcyclohex-1-enyl having the formula:



;

iv) 2,6,6-trimethylcyclohex-3-enyl having the formula:



;

v) and mixtures thereof.

24. (Canceled) A photo-labile pro-fragrance conjugate delivery system comprising:

A) from about 0.001% by weight, of a photo-activated pro-fragrance conjugate according to Claim 1; and

B) the balance carriers and adjunct ingredients.

25. (Currently Amended) A laundry detergent comprising:

A) from about 0.001% by weight, of a photo-activated pro-fragrance conjugate according to Claim 19 ~~Claim 1~~;

B) from about 10% by weight, of a detersive surfactant; and

C) the balance carriers and adjunct ingredients.

26. (Canceled) A perfume or fine fragrance comprising:

A) from about 0.001% by weight, of a photo-activated pro-fragrance conjugate according to Claim 1;

B) from about 0.01% to about 99% by weight, of an admixture of fragrance raw materials; and

C) the balance carriers and adjunct ingredients.

27. (Canceled) A hair shampoo or conditioner comprising:

A) from about 0.001% by weight, of a photo-activated pro-fragrance conjugate according to Claim 1;

B) from about 0.01% to about 5% by weight, of an admixture of fragrance raw materials; and

C) the balance carriers and adjunct ingredients.

28. (New) A conjugate according to Claim 19 wherein R^1 is hydrogen.

29. (New) A conjugate according to Claim 19 wherein said R^1 is one or more electron donating groups selected from the group consisting of hydroxy, C_1-C_{12} linear or branched alkoxy, $-N(R^{12})_2$, and mixtures thereof; R^{12} is H, C_1-C_{12} alkyl, and mixtures thereof.

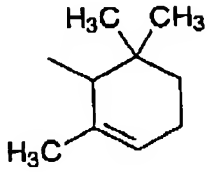
30. (New) A conjugate according to Claim 29 wherein said R^1 is hydroxy.

31. (New) A conjugate according to Claim 29 wherein said R^1 is $-N(CH_3)_2$.

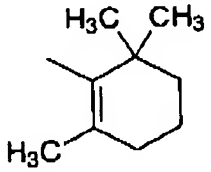
32. (New) A conjugate according to Claim 19 wherein R^2 are each hydrogen.

33. (New) A conjugate according to Claim 19 wherein R^3 is hydrogen, each R^4 is hydrogen, G^2 is methyl, G^1 is $-C(O)Y$; Y is selected from the group consisting of 2,6,6-trimethylcyclohex-2-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-1-enyl, 2,6,6-trimethylcyclohex-3-enyl, and mixtures thereof.

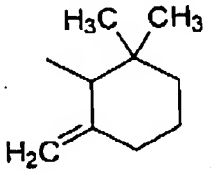
34. (New) A conjugate according to Claim 33 wherein Y is 2,6,6-trimethylcyclohex-2-enyl having the formula:



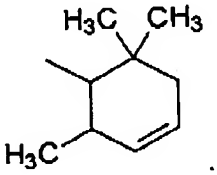
35. (New) A conjugate according to Claim 33 wherein Y is 2,6,6-trimethylcyclohex-1-enyl having the formula:



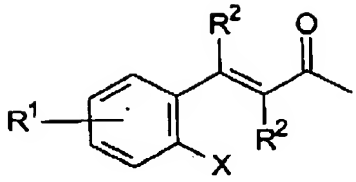
36. (New) A conjugate according to Claim 33 wherein Y is 2,6,6-trimethylcyclohex-1-enyl having the formula:



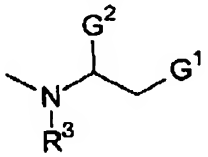
37. (New) A conjugate according to Claim 33 wherein Y is 2,6,6-trimethylcyclohex-3-enyl having the formula:



38. (New) A conjugate according to Claim 19 wherein said [photo-labile unit] has the formula:

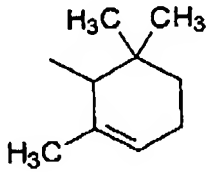


the index n is equal to 0, said [pro-fragrance unit] has the formula:



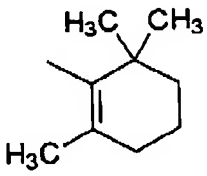
G^2 is $-CH_3$, G^1 is $-C(O)Y$; Y is selected from the group consisting of:

i) 2,6,6-trimethylcyclohex-2-enyl having the formula:



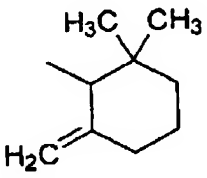
;

ii) 2,6,6-trimethylcyclohex-1-enyl having the formula:



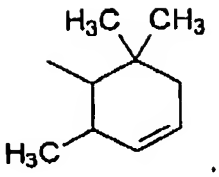
;

iii) 2,6,6-trimethylcyclohex-1-enyl having the formula:



; and

iv) 2,6,6-trimethylcyclohex-3-enyl having the formula:



39. (New) A conjugate according to Claim 38 wherein said R^1 is hydroxy.

40. (New) A conjugate according to Claim 38 wherein said R^1 is $-N(CH_3)_2$.

41. (New) A conjugate according to Claim 38 wherein R^2 are each hydrogen.